CLAIMS

1. Method of determining the vanishing point of petroleum product crystals, especially crystals of kerosenes intended for aviation in a temperature range of approximately from -5°C to -120°C,
characterised by the following steps:

- a laser emitter (6) and an associated longitudinal optical receiver (7) are mounted on either side of a substantially horizontal tubular measuring cell (4) located in a cryostatic chamber (1) equipped with a temperature sensor (2) connected to cooling and temperature control members, so that the optical beam (8) emitted by the laser emitter (6) is aligned with the horizontal axis of the measuring cell (4) and with the longitudinal optical receiver (7),
- the temperature sensor (2), the cooling and temperature control members and the longitudinal optical receiver (7) are connected to programmable calculating and display means,
- a diaphragm (12) is mounted directly downstream of the laser emitter (6) so that the optical beam (8) emitted thereby is sufficiently fine to rule out any reflection on the walls of the measuring cell (4),
- there is mounted, upstream of the longitudinal optical receiver (7), a polariser (9) which is so adjusted that the optical beam emitted directly by the laser emitter (6) cannot be transmitted,
- there is mounted close to the measuring cell (4), in the upstream portion thereof, a lateral optical receiver (13) connected to the optical beam (8) emitted

by the laser emitter (6) and to the programmable calculating and display means,

- the sample to be analysed is introduced into the measuring cell (4),
- the laser emitter (6), the longitudinal optical receiver (7) and the lateral optical receiver (13) are switched on so as to pass an optical beam through the sample to be analysed,
- the temperature of the cryostatic chamber (1) is gradually lowered while the curve showing the variations in the light intensity received by the longitudinal optical receiver (7) as a function of the temperature, or the detection curve, and the curve showing the variations in the light intensity received by the lateral optical receiver (13) as a function of the temperature, or the opacity curve, are recorded, and there is determined, using the latter curve, the end of crystallisation temperature of the sample to be analysed, or the point of opacity, from which the temperature of the chamber (1) is gradually raised again while continuing to record the detection curve and the opacity curve,
- the vanishing point of the crystals is determined from the detection curve.

2. Device for implementing the method according to claim 1, characterised in that

it comprises:

- a cryostatic chamber (1) equipped with a temperature sensor (2) connected to cooling and temperature control members,

- a substantially U-shaped measuring tube (3) which is mounted inside the cryostatic chamber (1) and the central, substantially horizontal branch of which constitutes the measuring cell (4) while the lateral branches (5, 5') permit the introduction of the sample to be analysed into the cell and its removal,
- a laser emitter (6) and an associated longitudinal optical receiver (7), aligned on either side of the measuring cell (4), along the longitudinal axis thereof,
- a diaphragm (12) mounted directly downstream of the laser emitter (6),
- a polariser (9) mounted upstream of the longitudinal optical receiver (7),
- programmable calculating and display means connected to the temperature sensor (2), to the cooling and temperature control members and to the longitudinal optical receiver (7), and
- a lateral optical receiver (13) mounted close to the measuring cell (4), in the upstream portion thereof, and connected to the programmable calculating and display means.

3. Device according to claim 2,
characterised in that
the light intensity is transmitted to the optical receiver(s) (7, 13) by way of light guides (15, 15').

4. Device according to claim 3,
characterised in that
the light guides (15, 15') cooperate with lenses (14, 14') capable of concentrating the optical beam (8).

5. Device according to any one of claims 2 to 4, characterised in that the measuring tube (3) is constituted by a metal element, especially made of aluminium, equipped with ports (10, 10', 10") permitting the passage of the optical beam (8) to be detected.

6. Device according to any one of claims 2 to 5, characterised in that the cooling and temperature control members are constituted by a cooling unit, especially a Stirling cycle cooling unit, the cold finger of which is equipped at its free end with dry contact heat transmission members cooperating with the cryostatic chamber (1) in order to allow it to be cooled to the desired temperature.

7. Device according to claim 6, characterised in that it is constituted by a compact portable device.